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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/710,654	07/27/2004	Gary A. Decter	018894-0113	4653
23524	7590	06/20/2007		
FOLEY & LARDNER LLP 150 EAST GILMAN STREET P.O. BOX 1497 MADISON, WI 53701-1497			EXAMINER MULLIS, JEFFREY C	
			ART UNIT 1711	PAPER NUMBER
			MAIL DATE 06/20/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/710,654

Applicant(s)

DEETER ET AL.

Examiner

Jeffrey C. Mullis

Art Unit

1711

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 March 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 and 5-76 is/are pending in the application.
- 4a) Of the above claim(s) 37 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 5-63 and 66-76 is/are rejected.
- 7) ☒ Claim(s) 64 and 65 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 5-8, 12-19, 21-23, 25, 26, 28-38, 45-53 and 56-60 are rejected under 35 U.S.C. 102(b) as being anticipated by Emmons et al. (US 4,120,839).

Patentees disclose a process utilizing an anionically produced polyether epoxy polymer (see "IV" and "V" in column 7) and a free radically produced acrylate in Example 7 with applicants characteristics which contains acrylic acid units copolymerized therein. Note Example 24 for an example using the Example 7 material.

The Castan patents, previously cited are incorporated by reference by Emmons et al.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 61-63, 66-74 and 76 are rejected under 35 U.S.C. 103(a) as obvious over Gottschalk et al. (US 5,998,544) in view of (20060111532) or Klier (US 6143820) or Emmons, cited above.

Patentees disclose a graft copolymer having graft side chain "A" prepared by anionic means (abstract) and a backbone of styrene-acrylonitrile with comonomer of molecular weight of 40,000 to 200,000 as determined by viscometry (and therefore closely corresponding to weight average molecular weights) and produced by free radical methods (column 4, lines 5-17). Note for instance Example "C7" in column 6 for use of glycidyl acrylate in applicants amounts when applicants (or patentees) molecular weights are used. With re to applicants number average molecular weights, patentees disclose use of free radical methods for producing their component "B" and in order for patentees number average molecular weights to be "about" 10,000, polydispersities would have to be 2-3 or higher, which is typical of free radical polymerization. Note '532 at paragraph 56 and Klier at paragraph 1, lines 15-20. Note Emmons in for instance Example 3 for polydispersities of about 3.

There are no examples in Gottschalk of "B" components with applicants weight average molecular weights and number average molecular weights. However choice of applicants weight average molecular weights from the primary reference would have been obvious to a practitioner having an ordinary skill in the art at the time of the invention in the expectation of adequate results absent any showing of surprising or unexpected results. With re to applicants number average molecular weights, such would result from formation of patentees "B" polymers having weight average molecular

Art Unit: 1711

weights of 40-60,000 (although number average molecular weights outside of this range could also be produced) by use of free radical polymerization as evidenced by the polydispersities disclosed by the secondary references and hence to use applicants' number average molecular weights in the primary reference would have been obvious to a practitioner since such would result from the free radical polymerization required by the primary reference by most procedures for free radical polymerization absent any showing of surprising or unexpected results.

Claims 64 and 65 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 1, 5-63 and 66-76 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brandstetter et al. (DE 3150171) in view of McCormick (US 20030191262) Lai (US 20030187138) or Greenblatt (US 20030069363).

Patentees disclose a reaction product of an ethylene copolymer and an anionic copolymer which may contain as little as 220 units of ethylene and 1-1500 units of anhydride or other units "B" such as contain applicants' "functional groups". Note patent claims 8 and 9 in this re. As an ethylene copolymer with 200 units of ethylene and 4 units of "B" would have a number average molecular weight of 5700-6000, applicants' number average molecular weights are suggested. With re to applicants' weight average molecular weights, these would result from if patentees above implied number average molecular weight materials had polydispersities of 4 or less, which are typical of free radical polymerization such as is taught by patentees. Note the secondary references at

Art Unit: 1711

paragraphs 51, 64 and 12 respectively for '62, '38 and '63. Note also paragraph 1 of McCormick disclosing numerous advantages when using RAFT instead of free radical polymerization and that RAFT gives even lower polydispersities than free radical. While no examples exist showing applicants specific materials, to arrive at such by selecting from the various parameters of the reference would have been obvious to a practitioner having an ordinary skill in the art at the time of the invention in the expectation of adequate results absent any showing of surprising or unexpected results. With re to production of materials having applicants weight average molecular weights (as well as number average molecular weights of 5700-6000 as set out above) such would have been obvious to a practitioner having an ordinary skill in the art at the time of the invention given that such would be expected to result from use of the free radical polymerization disclosed by Brandstetter given the polydispersities for free radical polymerization disclosed by the secondary references, absent any showing of surprising or unexpected results. Use of even lower polydispersities would have been obvious to a practitioner having an ordinary skill in the art at the time of the invention would have been obvious in view of McCormick since McCormick discloses that use of RAFT process is more advantageous than ordinary free radical polymerization absent any showing of surprising or unexpected results.

Art Unit: 1711

Applicant's arguments filed 3-2-07 have been fully considered but they are not persuasive. Unfortunately, with re to Emmons, upon further consideration, Emmons discloses at column 4, line 44 that his oligomers have "COOH" units, i.e. carboxyl groups. Emmons carboxyl groups are in salt form. However, at present the instant claims do not exclude the carboxyl function being present in salt form and as the "COOH" of Emmons reads on "acid functional groups" and Emmons disclosure is therefore encompassed by the claims. Unpatented claims are given their broadest reasonable interpretation consistent with the specification and nothing in the specification excludes carboxyl in salt form from applicants definition of "carboxylic acid functional groups". Amendment of the claims to recite that the carboxyl is in free acid form would overcome Emmons but of course applicants should point out support for such an amendment. The examiner points out that Example 1 of applicants specification reacts oligomer with living chain end anionic polymer, a material not even stable in the presence of carboxylic acid in acid form. However, there may be some other disclosure in the specification as filed which would indicate that applicants carboxylic acid is present in applicants composition in salt form.

Art Unit: 1711

Any inquiry concerning this communication should be directed to Jeffrey C. Mullis

M-F, 9-5 pm at telephone number 571 272 1075.

Jeffrey C. Mullis

J Mullis

Art Unit 1711

JCM

4-27-07

JEFFREY C. MULLIS  
PRIMARY EXAMINER  
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